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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,378	07/03/2003	Abdurrahman Sezginer	TWI-32410	7200

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STALLMAN & POLLOCK LLP
SUITE 2200
353 SACRAMENTO STREET
SAN FRANCISCO, CA 94111

EXAMINER	
STOCK JR, GORDON J	
ART UNIT	**PAPER NUMBER**
2877	

DATE MAILED: 11/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/613,378	SEZGINER ET AL.	
	Examiner	Art Unit	
	Gordon J. Stock	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 August 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The Amendment received August 25, 2005 has been entered into the record.

Drawings

2. The drawing received August 25, 2005 has been accepted by the Examiner.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1-4** are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's disclosure of prior art in view of **Brill et al. (WO 02/25723 A2)-cited by applicant.**

As for **claims 1-2**, applicant's disclosure of prior art teaches the following: first and second patterns, each including an upper grating layer and a lower grating layer (Fig. 2a and 2b: 202X and 202X'), each grating layer including a series of substantially parallel lines (Fig. 2a: 202X and 202X'), the upper grating lines of each test pattern aligned to be substantially parallel to the lower grating lines of the same test pattern (Fig. 2b: 204U, 204U', 204L, 204L'), each test pattern having an associated offset bias defined by the lateral offset of the upper and lower grating layers of the test pattern (Fig. 2B: 214, 214'), where a single line pitch is used for all gratings in all test patterns (Fig. 2B: pitch). As for the difference between the offset bias of the first test pattern and the offset bias of the second test pattern is substantially equal to the line pitch divided by four and the magnitude of the offset bias of the first test pattern is equal to one eighth of the line pitch, the applicant's disclosure of prior art is silent. However, Brill in a lateral

shift measurement teaches that optimal sensitivity for a grating pair is at an offset bias of 75 which is one eighth of 600 nm (Fig. 5, page 10) with pairs of gratings having offsets with similar magnitudes but differing directions (page 6, lines 20-40). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have the difference between the first test pattern and second test pattern be equal to one fourth the line pitch and the magnitude of the offset bias of a test pattern be one eighth of the line pitch, for maximum sensitivity for overlay measurements are with grating pairs having a bias offset of one eighth of the line pitch.

As for **claim 3**, applicant's disclosure of prior art in view of Brill discloses everything as above (see **claim 1**). In addition, applicant's disclosure of prior art teaches that the upper and lower grating lines of the first test pattern are substantially parallel to the upper and lower grating lines of the second test pattern (Fig. 2a: 202X, 202X'; Fig. 2b: 208U and 208L).

As for **claim 4**, applicant's disclosure of prior art in view of Brill discloses everything as above (see **claim 1**). In addition, applicant's disclosure of prior art teaches a third test pattern, including an upper grating layer and a lower grating layer, each grating layer including a series of substantially parallel lines, the lines of the upper and lower gratings of the third test pattern aligned to be substantially parallel to each other, where the lines in the third test pattern are spaced at the same line pitch used for the first and second test patterns (Fig. 2a: 202Y or 202Y'; page 4, lines 17-18).

5. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's disclosure of prior art in view of **Brill et al. (WO 02/25723 A2)-cited by applicant** further in view of **Niu et al. (6,855,464).**

As for **claim 5**, applicant's disclosure of prior art in view of Brill discloses everything as above (see **claim 4**). As for the three test patterns having three different angular orientations in the plane of the wafer, applicant's disclosure of prior art is silent. However, Niu in grating test patterns teaches at least three grating patterns in three different angular orientations on the wafer to reduce random error at different orientation angles (Fig. 1; col. 3, lines 10-35; col. 4, lines 40-55). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have at least three test patterns with different angular orientations on the plane of wafer in order to determine overlay offset at a plurality of angular orientations to reduce random error in overlay measurements.

Response to Arguments

6. Applicant's arguments filed August 25, 2005 have been fully considered but they are not persuasive: as for page 8 remark concerning Brill not solving dead zones but maximizing sensitivity, Examiner finds the argument not persuasive, for in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., solving dead zones) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that the prior art revealed problems with dead zones and that Brill does not suggest solving this but instead maximizes sensitivity by having a nominal shift difference be equal to the line pitch divided by four (Remarks page 8) , the fact that applicant has recognized another advantage which would flow naturally from following the

suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

As for the Remarks on page 9 and 10 referring to Brill seeking to maximize sensitivity at a specific nominal shift and the applicant's claim 1 is intended to have good sensitivity for all possible overlay offsets and is for 'any pitch' or 'all values of overlay' or teaches 'acceptable sensitivity can be obtained for all values of overlay,' Examiner disagrees. For again, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., 'any pitch' or 'all values of overlay' or 'acceptable sensitivity can be obtained for all values of overlay') are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Claim 1 as written does not preclude a single specific nominal shift, "first and second test patterns" does not preclude a specific nominal shift for the test patterns and "a single line pitch is used for all gratings in all test patterns" does not preclude a specific nominal shift nor does it suggest a plurality of overlay values and nominal shifts.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US 2005/0018190 A1 to Sezginer et al. (specifically, paragraph 0012 demonstrating grating pairs with offset biases with differences of ¼ pitch).

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Fax/Telephone Numbers

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and

2) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: **(571) 273-8300**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (571) 272-2431. The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Gregory J. Toatley, Jr., can be reached at 571-272-2800 ext 77.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private Pair system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gs
November 9, 2005

Gregory J. Toatley, Jr.
Supervisory Patent Examiner
Art Unit 2877

14 Nov 05